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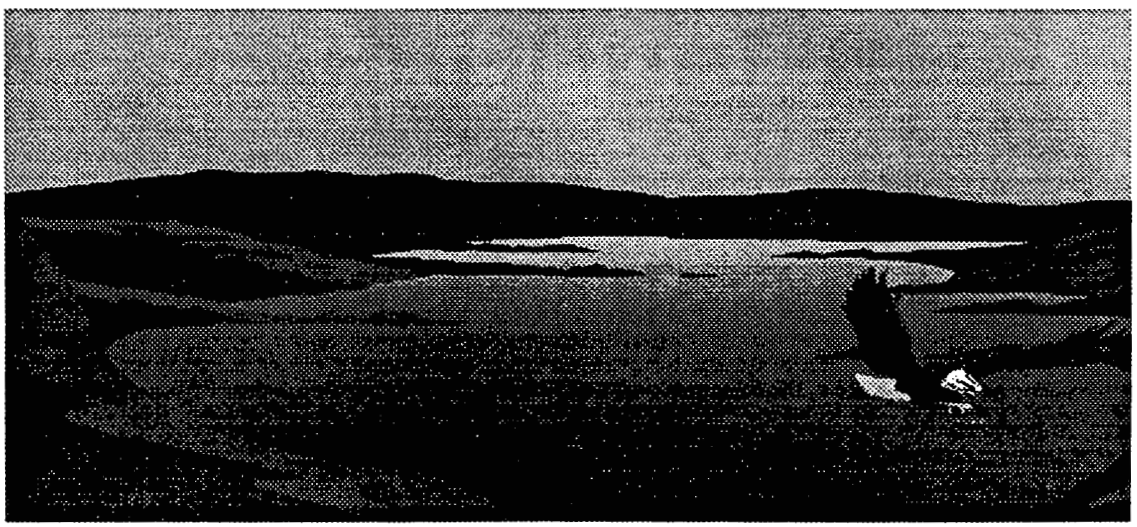
ENVIRONMENTAL RESTORATION PROGRAM

Monthly Report For
October, 1991



November 20, 1991

EG&G ROCKY FLATS

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS PLANT

ENVIRONMENTAL RESTORATION PROGRAM

MONTHLY REPORT FOR

OCTOBER 1991

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1.0 INTRODUCTION

This Monthly Status Report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for October 1991. This Program implements the Interagency Agreement (IAG) between the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the State of Colorado to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Section 2.0 of this report, the Executive Summary, highlights significant achievements and summarizes the milestones completed during October. It also presents any major unresolved issues of the Program. Technical progress, schedule status, and milestone status for each Operable Unit as well as other Program activities are presented in Section 3.0. Operable Units will be reported on as work in them commences. Section 4.0 contains the schedules for routine environmental sampling as required by paragraph 210 of the Interagency Agreement. Section 5.0 contains a list which identifies the contractors and subcontractors performing work on the Program as required by paragraph 13 of the IAG.

2.0 EXECUTIVE SUMMARY

2.1 SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR THE REPORT MONTH

Drilling and sampling activities continued during October on the OU 1 - 881 Hillside. A total of 81 holes (50 boreholes, 19 monitoring wells, 12 abandoned wells) have been drilled on this Phase III Project as of the end of October.

A laboratory capable of handling the tissue analysis work from the OU 1 environmental evaluation biota sampling has been located and will be required to meet stringent Quality Assurance criteria for samples.

Contractors started moving equipment in place for construction of the OU 1 IRA Phase II-B french drain. The EG&G subcontractor for the french drain construction was scheduled to start trenching this month, but efforts were hindered due to severe weather conditions. Providing favorable weather conditions exist, the french drain trenching will start November 6, 1991.

The OU 1 IRA received additional treatment process equipment during October including one acid tank and one caustic tank for the 891 treatment building. The EG&G subcontractor for the 881 Hillside Phase II-A equipment installation is 95 percent complete with the CPVC pipe installation. Pipe heat tracing and insulation is approximately 50 percent complete. Foundation construction work for the effluent tanks started in October. The EG&G subcontractor is 90 percent complete with the foundation construction for the tanks. Tank erection started at the end of October.

The OU 2 alluvial drilling program is on schedule with 36 monitoring wells and 2 boreholes completed to date. Volatile organic core sampling and other analytical testing is on schedule. Three test pits in the surficial soil sampling task were completed for a total of 20 pits completed to date.

EPA and CDH have formally approved the OU 2 Phase II RFI/RI Work Plan (Alluvial) which was submitted as Technical Memorandum One. Technical Memorandum Two - Chemical Analysis Plan, which provides a plan for chemical analyses of environmental samples, was completed in October and will be submitted to the agencies in November.

The OU 2 Granular Activated Carbon (GAC) treatment system collected, treated, and discharged 2,922,503 gallons of surface water during Fiscal Year (FY) 1991 (May 13 to September 20, 1991) and approximately 300,000 gallons of surface water during October, 1991. The system continues 24-hour manned operation without problems.

Additional procurement and engineering information was presented to EPA and CDH at the second meeting for dispute resolution of the OU 2 "Complete IM/IRA Construction" September 30, 1991 milestone. Results of the meeting prompted efforts to streamline procurement and engineering activities in the radionuclides removal system design/build process. An expedited schedule for the procurement, design, construction, and start of operations of the radionuclides removal unit was generated by EG&G and forwarded to DOE/RFO on October 29, 1991. Finalization of performance specifications is expected during the week of November 4, 1991.

Regulatory agency comments on the OU 3 Draft Phase I RFI/RI Work Plan were received on October 9, 1991. Modifications to the Draft Work Plan are being made based on regulatory agency comments. Issues are: 1) the contaminants of concern to be sampled and 2) the statistical basis for the number or samples taken. A meeting with EPA/CDH was held the week of October 14, 1991 to

discuss the comments.

A wind tunnel is being considered to evaluate resuspension potential of soils and sediments contributing to offsite health risk. The Preliminary Risk Assessment in OU 3 has indicated inhalation of resuspended particles as the major pathway for offsite health risk. The wind tunnel can develop data which measures the resuspension of soils and sediments and thus, the contribution from wind dispersed radiological contamination. It is anticipated that a month-long study with the wind tunnel will be less expensive than year-long air sampling and provide more usable data.

A kickoff meeting was held on October 2, 1991 with EG&G and their subcontractors to revise the OU 4 draft Final Phase I RFI/RI Work Plan. Work is on schedule to meet the IAG milestone, November 26, 1991, for submission of the Final Phase I RFI/RI Work Plan to EPA and CDH.

The public presentation of the "OU 4 - Solar Evaporation Ponds Interim Measure/Interim Remedial Action (IM/IRA) Decision Document" was held October 17, 1991. Presentation of the IM/IRA consisted of a half hour slide show and brief question and answer period. A second public comment meeting was held October 30, 1991. Comments will be addressed in the "Responsiveness Summary" to be prepared for the proposed IM/IRA Decision Document.

EPA and CDH have provided conditional approval of the OU 7 Final Phase I RFI/RI Work Plan. Revisions to the work plan to incorporate EPA/CDH comments are expected to submitted to the regulatory agencies on December 6, 1991.

Public comments have been received on the Plan for Prevention of Contaminant Dispersion (PPCD), and EG&G is preparing the Responsiveness Summary (RS). The comments indicate that the PPCD will not require significant revision; only minor editorial and clarification modifications are needed. The RS and Final PPCD will be submitted to CDH and EPA on schedule, November 25, 1991.

The first public meeting for the "Discharge Limits for Radionuclide Levels" Work Plan was held October 17, 1991. The public comment period for this plan is scheduled to end November 21, 1991. The RS to the public comments (an IAG milestone) will be submitted to EPA/CDH on January 30, 1992.

Environmental Evaluation field sampling for OUs 1, 2, and 5 is now complete, except for a winter survey to be performed in January or February 1992.

DOE received comments from The Nevada Test Site on the Draft Work Plan for the Treatability Study (TSWP) on plutonium contaminated soil. The comments are being incorporated into the TSWP. A revised draft was delivered to RFO on October 11, 1991.

The Sitewide Program and OU 4 Administrative Record Index was delivered as scheduled to EPA and CDH for review and comment on October 28, 1991.

2.2 PROBLEMS AND PROGRAMMATIC ISSUES

Three monitor well installations are on hold pending approval of a NEPA Categorical Exclusion (CX) for wetlands/floodplains. These three wells are in the Woman Creek floodplain. Well installations may be delayed since NEPA clearance to drill is not expected for several months. Work-around plans are in progress.

The September 30, 1991 milestone for completion of construction of the entire OU 2 treatment system (metals/radionuclides system) at South Walnut Creek and the October 30, 1991 milestone to "Begin Field Treatability Testing (Entire System)" were not met. Delays primarily associated with engineering/design and procurement activities are at issue with this milestone. EPA has rejected a DOE request for an extension of the milestone dates. Dispute resolution proceedings convened between DOE/RFO, EPA and CDH on October 17, 1991. DOE and EG&G are reviewing the capability to further expedite procurement and engineering activities.

The delay in removal of sludge from the OU 4 solar ponds and the requirement for an IM/IRA for the surge tanks will impact the scheduled start of the RFI/RI field activities in January 1992. Further information regarding any schedule impacts will be available after the public comment period; ending November 6, 1991.

DOE has received comments from EPA and CDH disapproving the Final OU 5 Phase I RFI/RI Work Plan. EPA and CDH have given RFO until December 2, 1991 to submit changes to the OU 5 Work Plan.

DOE has received notification from EPA and CDH of disapproval of the Final Phase I RFI/RI Work Plan for OU 6. As with the OU 5 RFI/RI Work Plan which was also disapproved, many of the changes EPA and CDH are requesting are outside the scope of the IAG. DOE will review the regulatory agencies comments in detail before deciding on how to proceed with the additional work requested for OU 6.

2.3 NEAR-TERM IAG MILESTONES

OU#	Milestone Description	Scheduled Completion	Actual Completion
01	Begin Phase II-B IM/IRA Construction	03 Sep 91	26 Aug 91
SW	Submit Final Radionuclide Discharge Limits Plan	16 Sep 91*	16 Sep 91
06	Submit Final Phase I RFI/RI Work Plan	16 Sep 91	16 Sep 91
02	Complete IM/IRA Construction	30 Sep 91**	
02	Begin Field Treatability Testing (Entire System)	30 Oct 91***	
SW	Submit Responsiveness Summary for PPCD	25 Nov 91*	
04	Submit Final Phase I RFI/RI Work Plan	26 Nov 91	
09	Submit Final Phase I RFI/RI Work Plan	26 Nov 91	
10	Submit Draft Phase I RFI/RI Work Plan	27 Nov 91	
03	Submit Final Phase I RFI/RI Work Plan	06 Dec 91*	
11	Submit Final Phase I RFI/RI Work Plan	02 Jan 92	
SW	Submit Draft Historical Release Report	08 Jan 92	

* indicates a revised date
** extension of OU 2 milestone date to September 24, 1992, denied by EPA.
*** extension of OU 2 milestone date to September 25, 1992, denied by EPA.

3.0 PROJECT STATUS

3.1 OU 1 - 881 HILLSIDE AREA

DESCRIPTION:

The soil and groundwater at the 881 Hillside Area, located north of Woman Creek in the southeast section of RFP, were contaminated in the 1960s and 1970s with solvents and radionuclides. The area is almost two miles from the eastern outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSSs) that make up OU 1 are being investigated and treated as high-priority sites because of elevated concentrations of organic compounds in the near-surface groundwater and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involves construction of an underground drainage system called a French drain that will intercept and contain contaminated groundwater flowing from the OU 1 area. The contaminated water will be treated at the 891 treatment facility, designed for this purpose, and released onsite into the South Interceptor Ditch alongside Woman Creek. IRA construction is scheduled to be complete by March 2, 1992. The remedial investigation and feasibility study (RI/FS) to determine the final remedial action are continuing in parallel with the IRA.

3.1.1 OU 1 ASSESSMENT

SCOPE OF WORK CHANGES:

EPA approval of Technical Memorandum One, the revised chemical analysis program for the 881 field program, was received August 30, 1991. The program was implemented September 4, 1991. Analysis was streamlined to a more appropriate group of chemicals where previous sampling has indicated no contamination. This resulted in eliminating acid and base/neutral extractable, and pesticide/PCB analyses from 20 boreholes and 14 monitoring wells.

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
Submit Final Phase III RFI/RI Work Plan	31 Oct 90

OCTOBER WORK ACTIVITY STATUS:

Drilling and sampling activities continued on the Phase III OU 1 Remedial Investigation (RI) field work. A total of 81 holes have been drilled as of October 29, 1991. The average hole required five samples, which totals approximately 405 downhole samples taken to-date. The composite 81 holes include 50 boreholes, 19 active monitoring wells and 12 abandoned monitoring wells.
The EG&G subcontract for the OU 1 RI field work was awarded October 17, 1991. Field work on this project began before October 17 under a letter contract.

A laboratory capable of handling the tissue analysis work from the environmental evaluation biota sampling has been located and should meet stringent Quality Assurance criteria for samples. These analyses for the Environmental Evaluation section of the RI report should be available when needed.

Small mammal trapping, vegetation sampling for production, final aquatic invertebrate sampling, and final fish and minnow sampling for the OU 1 environmental evaluations were completed. Tissue samples were taken for selected species of small mammals, fish, salamanders, minnows, crayfish and numerous plant species.

Tours of OU 1 field activities were provided for the EPA contractor, PRC, on October 9, 1991 and October 17, 1991.

PLANNED WORK FOR NOVEMBER:

Drilling and sampling activities will continue on OU 1 RI.

PROBLEMS:

Three monitor well installations are on hold pending approval of a NEPA Categorical Exclusion (CX) for wetlands/floodplains. These three wells are in the Woman Creek floodplain. Well installations may be delayed since NEPA clearance to drill is not expected for several months. Work-around plans are in progress.

OPEN ITEMS: None

3.1.2 OU 1 REMEDIATION

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91

OCTOBER WORK ACTIVITY STATUS:

Contractors started moving equipment in place for construction of the OU 1 IRA Phase II-B french drain. The subcontractor for the french drain construction was scheduled to start trenching this month, but efforts were hindered due to severe weather conditions. Providing weather conditions are acceptable, the french drain trenching is now scheduled to start November 6, 1991. The Job Safety Analysis, which is an EG&G document that identifies potential worker hazards and associated hazard prevention safety steps, was approved October 25, 1991.

The OU 1 IRA received additional treatment process equipment during October including one acid tank and one caustic tank for the 891 treatment building. The EG&G subcontractor for the 881 Hillside Phase II-A equipment installation is 95 percent complete with the CPVC pipe installation. Pipe heat tracing and insulation is approximately 50 percent complete. The ion exchange unit is scheduled for delivery by mid-November. Foundation construction work for the effluent tanks started in October. The EG&G subcontractor is 90 percent complete with the foundation construction for the tanks. Tank erection started at the end of October.

DOE is presently working with the EG&G training group to qualify a subcontractor to perform the 881 Hillside worker radiation safety training.

PLANNED WORK FOR NOVEMBER:

Continue Effluent Tank construction
Begin French Drain excavation
Install Ion Exchange Unit
Continue Systems Operations testing

PROBLEMS:

Polypropylene flange mating problems have slowed down hydrotesting of the IRA equipment in the 891 treatment building. The subcontractor is working with the polypropylene pipe manufacturer to resolve the problem.

RFO and EG&G are pursuing resolution to issues related to wetlands and wildlife regulatory compliance on the OU 1 IRA french drain construction. Working meetings in November are expected to resolve any biological regulatory conflicts.

OPEN ITEMS: None

3.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

DESCRIPTION:

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent, some of which may have contaminants that were not removed by the treatment system.

An Interim Measures/Interim Remedial Action (IM/IRA) provides for surface water seeps in source areas of contamination to be collected, treated, and discharged to the surface water system. Operation of a field-scale treatability unit began for the Walnut Creek drainage in May 1991. The effectiveness of the treatment process will be evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. Bench-scale testing of surface water in the Woman Creek drainage is now being conducted, after which a separate Interim Remedial Action Plan for this drainage will be developed and implemented. The RI and FS to determine the final remedial action are continuing in parallel with the IRA.

3.2.1 OU 2 ASSESSMENT

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91

OCTOBER WORK ACTIVITY STATUS:

EPA and CDH have formally approved the OU 2 Phase II RFI/RI Work Plan (Alluvial) which was submitted as Technical Memorandum One. Technical Memorandum Two - Chemical Analysis Plan, which will provide chemical analyses of environmental samples, was completed in October and will be submitted to the agencies in November. Three test pits in the surficial soil sampling task were completed for a total of 20 pits completed to date. The only remaining pits are the ones in the Protected Area (PA) and Pits X1 through X5, which will have soil interstitial water monitoring and sampling equipment installed in them.

The Alluvial drilling program is on schedule with 36 monitoring wells and 2 boreholes completed to

date. Volatile organic core sampling and other analytical testing is on schedule.

The one-year OU 2 Environmental Evaluation sampling program is underway. The Environmental Evaluation for OU 2 continued with vegetation sampling for cover and production, small mammal trapping, periphyton sampling in Reference Area ponds, sampling of benthic macroinvertebrates, insect sweep-netting, and collection of small mammals, vegetation, and insects for tissue analyses.

PLANNED WORK FOR NOVEMBER:

Drilling and sampling activities will continue on the OU 1 RI.

PROBLEMS: None

OPEN ITEMS: None

3.2.2 OU 2 REMEDIATION

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	13 May 91
Complete IM/IRA Construction	*
Begin Field Treatability Testing (Entire System)	*

* Scheduled completion dates were 30 Sept 91 for the construction milestone and 30 Oct 91 for the testing milestone. Extension request denied by EPA and CDH. Dispute resolution proceedings convened on October 17, 1991.

OCTOBER WORK ACTIVITY STATUS:

The South Walnut Creek Granular Activated Carbon (GAC) treatment system collected, treated, and discharged 2,922,503 gallons of surface water during Fiscal Year (FY) 1991 (May 13 to September 20, 1991) and approximately 300,000 gallon of surface water during October, 1991. The system continues 24-hour manned operation without problems.

Designs for system modifications and installation of a field office trailer were discussed with the subcontractor on October 22, 1991. To prevent problems with equipment freezeups during the cold weather experienced the last week of October, the operating subcontractor has been recirculating treated water back to the influent storage tank.

DOE and EG&G met with EPA/CDH to discuss the radionuclides removal system and issues related to the dispute resolution of the OU 2 "Complete IM/IRA Construction" September 30, 1991 milestone. Additional procurement and engineering information was presented to EPA and CDH. Results of the meeting prompted efforts to streamline procurement and engineering activities. An expedited schedule for the procurement, design, construction, and start of operations of the radionuclides removal unit was generated. Engineering review and comment resolution continues on the performance specifications for the radionuclides removal system. Finalization of the performance specifications is expected during the week of November 4, 1991.

An outline for the final bench-scale tests report for the South Walnut Creek portion of the Interim Measures is under review. Upon receiving comments, a draft version of the final report will be prepared.

The draft Woman Creek Interim Measures/Interim Remedial Action/Environmental Assessment (IM/IRA/EA) Plan recommending "no action" was submitted to EPA and CDH on October 2, 1991 for their review and comment. The draft IM/IRA/EA Plan recommending "no action" was formally rejected by EPA and CDH in a letter dated October 11, 1991. At a meeting conducted with the agencies on October 9, 1991, DOE presented a new approach and major changes of scope for the development of a revised IM/IRA Plan. The agencies indicated the new approach and scope changes were acceptable, with modifications.

A working session was held between EG&G and its subcontractors on October 24, 1991 to implement a new IM/IRA document. Issues included hydrogeologic and source characterization contributing to the Woman Creek Basin cleanup. The observational approach has been endorsed by the agencies and will be implemented into the revised documents.

PLANNED WORK FOR NOVEMBER:

DOE will continue to negotiate to resolve the dispute related to the unachieved milestones for the radionuclide removal system.

Bid submittals for a subcontract design/build for a radionuclide removal system at South Walnut Creek Basin is scheduled for November 26, 1991.

Development of the South Walnut Creek IRA GAC unit will continue.

PROBLEMS:

The October 30, 1991 milestone to begin Field Treatability Testing of the Entire System for radionuclides and metals treatment at South Walnut Creek was not met. Delays, primarily associated with engineering/design and procurement are at issue with this milestone. EPA has rejected a DOE request for an extension of the milestone date. Dispute resolution has begun.

OPEN ITEMS: None

3.3 OU 3 - OFFSITE AREAS

DESCRIPTION:

OU 3 can be divided into two categories based on the two drivers of the activities. The IAG directs activities according to CERCLA. This involves assessment of contamination in offsite areas also referred to as Individual Hazardous Substance Sites (IHSSs): Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay v. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the land owners.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES:

The number of sediment core samples is being examined in light of the large number of samples required under the current Draft Phase I RFI/RI Work Plan and the resulting large cost for sample analysis. The revised plan is to obtain sufficient samples to validate older studies rather than conduct a new totally complete study. A statistical evaluation of the older data is needed to determine the number of samples needed to validate this older data.

MILESTONE ACCOMPLISHMENTS:

Submit Draft Past Remedy Report	26 Oct 90
Submit Draft Historical Information/Preliminary Health Risk Assessment Report	09 Nov 90
Submit Final Past Remedy Report	02 Apr 91
Submit Final Historical Information/Preliminary Health Risk Assessment Report	16 Apr 91
Submit Draft Phase I RFI/RI Work Plan	10 Jul 91

OCTOBER WORK ACTIVITY STATUS:

Regulatory agency comments on the Draft Phase I RFI/RI Work Plan were received on October 9, 1991. Modifications to the Draft Phase I RFI/RI Work Plan are being made based on regulatory agency comments. Issues are: 1) the contaminants of concern to be sampled and 2) the statistical basis for the number or samples taken. A meeting with EPA/CDH was held the week of October 14, 1991 to discuss the comments. A meeting is scheduled for November 1, 1991, among all the parties (DOE, EG&G and EPA/CDH) to resolve the issue regarding the statistical basis for number of samples taken.

A wind tunnel is being considered to evaluate resuspension potential of soils and sediments contributing to offsite health risk. The Preliminary Risk Assessment in OU 3 has indicated inhalation of resuspended particles as the major pathway for offsite health risk. The wind tunnel can develop data which

measures the resuspension of soils and sediments and thus, the contribution from wind dispersed radiological contamination. It is anticipated that a month-long study with the wind tunnel will be less expensive than year-long air sampling and provide more usable data.

PLANNED WORK FOR NOVEMBER:

Preparation of the Final Phase I RFI/RI Work Plan will continue.

PROBLEMS:

Remedial actions required under the 1985 McKay vs. U.S. Settlement Agreement may be in conflict with CERCLA. Tilling of the land surface to mix plutonium contaminated surface soil, as required under the Settlement Agreement, prior to completion of the RI/FS will probably not be allowed by EPA. The remedial action as determined by the RI/FS process, if any, will probably not include plutonium soil mixing through tilling.

OPEN ITEMS: None

3.4 OU 4 - SOLAR EVAPORATION PONDS

DESCRIPTION:

OU 4 is made-up of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C. Beginning in the late 1950s, the ponds were used to store and evaporate low-level radioactive process water containing high concentrations of nitrates and treated acidic wastes. The sludge and sediments that resulted from the process were periodically removed and disposed of at the Nevada Test Site.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle ground water contaminated by the ponds and to prevent natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger, interceptor trench system, which recycles approximately four million gallons of ground water a year back into the solar evaporation ponds.

No additional process water has been pumped into the ponds since 1983. The interceptor trench system collects and recycles ground water into the solar evaporation ponds continuously. Presently, only the 207B north solar evaporation pond receives contaminated ground water collected by the interceptor system. The ponds are RCRA interim status regulated units that are currently under closure. In order to proceed and characterize the level of contamination at the site, approximately eight million gallons of excess liquid in the ponds must be removed. The removal of this liquid and the redirection and treatment of the ground water by the interceptor trench system are the focus of the Interim Remedial Action which is scheduled for operation in early 1992.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase I RFI/RI Work Plan 08 Jun 90

OCTOBER WORK ACTIVITY STATUS:

A kickoff meeting was conducted on October 2, 1991 with EG&G and their subcontractors to revise the OU 4 draft Phase I RFI/RI Work Plan. Work is on schedule to meet the IAG milestone, November 26, 1991, for submission of the Final Plan to EPA and CDH. A copy of the revised Work Plan will be delivered to DOE/RFO for review on November 1, 1991.

The public presentation of the OU 4 - Solar Evaporation Ponds Interim Measures/Interim Remedial Action (IM/IRA) Decision Document was held October 17, 1991. Presentation of the IM/IRA consisted of a half hour slide show and brief question and answer period. A public comment meeting on the document was also held October 30, 1991. Comments were received from three commenters. These comments will be addressed in the "Responsiveness Summary" to be prepared for the IM/IRA document.

PLANNED WORK FOR NOVEMBER:

The revised draft Phase I RFI/RI Work Plan will be completed by EG&G on November 1, 1991. The work plan will be reviewed by DOE from November 1-15, 1991. The comments will be addressed and the Final Plan will be delivered to EPA and CDH on November 26, 1991, to meet the IAG milestone.

PROBLEMS:

The delay in removal of sludge from the solar ponds and the requirement for an IM/IRA for the surge tanks will impact the scheduled start of the RFI/RI field activities in January 1992. Further information regarding any schedule impacts will be available after the public comment period; ending November 9, 1991.

OPEN ITEMS: None

3.5 OU 5 - WOMAN CREEK

DESCRIPTION:

This activity encompasses assessment and remediation in the Woman Creek drainage of ten Individual Hazardous Substance Sites (IHSS). They are the Original Landfill (IHSS 115), the Ash Pits (IHSS 133.1 - 133.4), the Incinerator (IHSS 133.5), the Concrete Wash Pad (IHSS 133.6), the Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11) and the Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified and are located, one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
Submit Final Phase I RFI/RI Work Plan	30 Aug 91

OCTOBER WORK ACTIVITY STATUS:

DOE has received comments from EPA and CDH disapproving the Final OU 5 Phase I RFI/RI Work Plan. EPA and CDH have given DOE until December 2, 1991 to resubmit changes to the OU 5 Work Plan. EPA and CDH disapproved the Final Work Plan believing that if the plan was implemented it would provide insufficient information on which to base a risk assessment and remedial action decisions.

The Environmental Evaluation for OU 5 continued with vegetation sampling for cover and production, small mammal trapping, periphyton sampling in Reference Area ponds, sampling of benthic macroinvertebrates, insect sweep-netting, and collection of small mammals, vegetation, and insects for tissue analyses.

A copy of the OU 5 Environmental Evaluation Work Plan was sent to DOE Oak Ridge, as requested by Dr. Timothy Joseph at the Risk-Based Standards Technical Working Group meeting held in Washington, DC on October 8 through 9, 1991.

PLANNED WORK FOR NOVEMBER:

Initiate resolution of the comments on Final Phase I RFI/RI Work Plan with EPA and CDH. EPA and CDH have issued a completion date of December 2, 1991 to resubmit the Work Plan for approval.

PROBLEMS: None

OPEN ITEMS: None

3.6 OU 6 - WALNUT CREEK

DESCRIPTION:

This activity encompasses assessment and remediation in the Walnut Creek Drainage of twenty Individual Hazardous Substance Sites (IHSSs). They are the A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSS 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165), and the Old Outfall Area (IHSS 143). One additional site, the Soil Dump Area (IHSS 156.2), was moved from OU 14 to OU 6 in 1991. Two IHSSs, Property Utilization And Disposal Yard (PU&D Yard) (IHSS 170) and Property Utilization and Disposal Container Storage Facilities (IHSS 174) have been moved from OU 6 to OU 10. Surface and subsurface soil samples will be taken on a 150-foot grid across this IHSS instead of the 50-foot grid around the perimeter as proposed in the IAG. In addition, one monitoring well will be drilled 20 feet into bedrock within the IHSS and will be completed in bedrock if a sandstone zone is encountered. Five bedrock groundwater monitoring wells will be installed in the vicinity of North Walnut Creek during the OU 6 remedial investigation. The purpose of these wells is to characterize the bedrock in the vicinity of the A-series ponds.

Sediment samples will be collected from the drainage in OU 6 to characterize areas where existing data is currently lacking. Proposed sediment sample locations have been located along each stream segment on North and South Walnut creeks where additional characterization is needed. Based on a review of the data collected at the 17 existing locations along the OU 6 drainage, there exists a significant amount of information about the sediments in many parts of OU 6; therefore, the sampling locations specified in the RFI/RI Work Plan have been reduced.

The Field Sampling Plan has been modified for the Triangle Area (IHSS 165) and the Old Outfall Area (IHSS 143) so that the surface soil sampling specified in the IAG can be taken from the original surface of these units. This will entail using borings to drill down to the original land surface and collecting samples at and below this surface.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
Submit Final Phase I RFI/RI Work Plan	16 Sep 91

OCTOBER WORK ACTIVITY STATUS:

DOE has received notification from EPA and CDH of disapproval of the Final Phase I RFI/RI Work Plan for OU 6. As with the OU 5 RFI/RI Work Plan which was also disapproved, many of the changes EPA and CDH are requesting are outside the scope of the IAG. DOE will review the regulatory agencies

comments in detail before deciding on how to proceed with the additional work requested for OU 6.

PLANNED WORK FOR NOVEMBER:

Continue work on the OU 6 RFI/RI Work Plan for submittal to the regulatory agencies by December 16, 1991.

PROBLEMS:

The additional work scope added to the RFI/RI Work Plan by the regulatory agencies comments will significantly increase the cost of the RFI/RI field work. This issue is being reviewed by DOE.

OPEN ITEMS: None

3.7 OU 7 - PRESENT LANDFILL

DESCRIPTION:

The Present Landfill - Operable Unit (OU) 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two Individual Hazardous Substance Sites (IHSS). IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s extensive investigations were conducted on the waste streams being disposed into the landfill, and consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	28 Aug 91

OCTOBER WORK ACTIVITY STATUS:

EPA and CDH have provided conditional approval of the OU 7 Final Phase I RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan. Revisions to the work plan to incorporate EPA/CDH comments are expected to be completed by December 2, 1991, and submitted to the regulatory agencies on December 6, 1991.

PLANNED WORK FOR NOVEMBER:

Address EPA and CDH comments received as "conditional approval" for the Phase I RFI/RI Work Plan.

PROBLEMS: None

OPEN ITEMS: None

3.9 OU 9 - ORIGINAL PROCESS WASTE LINES

DESCRIPTION:

This activity involves characterizing a series of tanks and associated process waste lines. The Original Process Waste Lines (OPWL) consisted of a system of 57 designated pipe sections extending between 73 tanks and 24 buildings connected by 35,000 feet of buried pipeline that transferred process wastes from point of origin to on-site treatment plants. The system was placed into operation in 1952 and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system have been incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics and acids. Small quantities of other liquids were also introduced in the system, including pickling liquor from foundry operations, medical decontamination fluids, miscellaneous laboratory liquids from Building 123, and laundry effluent from Buildings 730 and 778. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines which are accessible, and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by test pits and borings at approximately 300 foot intervals along the pipelines and by borings around the tanks which are outdoors. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90

OCTOBER WORK ACTIVITY STATUS:

EPA/CDH began their review of the draft Phase I RFI/RI Work Plan on July 3, 1991. The regulatory agencies comments were received September 30, 1991. The Final Phase I RFI/RI Work Plan is in revision and will be submitted to the regulatory agencies on November 26, 1991, the IAG milestone date.

PLANNED WORK FOR NOVEMBER:

Continue work on the Final Phase I RFI/RI Work Plan which is due to the agencies on November 26, 1991.

PROBLEMS: None

OPEN ITEMS: None

3.10 OU 10 - OTHER OUTSIDE CLOSURES

DESCRIPTION:

OU 10 is made up of 18 Individual Hazardous Substance Sites (IHSSs) scattered throughout the plant consisting of various hazardous waste units. Six of the IHSSs are located in the Protected Area (PA), two are located in the buffer zone near the present landfill, the remaining are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage, to a utilization yard with waste spills. A Draft Phase I RFI/RI Work Plan is currently in preparation. The primary components of the RFI/RI Work Plan for OU 10 will be a Field Sampling Plan (FSP), Baseline Risk Assessment Plan (BRAP), and an EE Work Plan. Interim Remedial Action (IRA) construction is scheduled to begin in early 1998.

Three additional IHSSs were transferred from other operable units to OU 10 after the draft RFI/RI Work Plan was completed in FY90. The draft Work Plan was based on the draft IAG which was modified during final IAG negotiations. A contract modification has been initiated to incorporate the three IHSSs into the draft Work Plan and to perform general upgrades to the Plan.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS: None

OCTOBER WORK ACTIVITY STATUS:

The Draft Phase I RFI/RI Work Plan for OU 10 was completed in October.

PLANNED WORK FOR NOVEMBER:

Comments on the OU 10 Draft Phase I RFI/RI Work Plan will be incorporated into the Work Plan which will be submitted to the regulatory agencies on November 27, 1991, the IAG milestone date.

PROBLEMS: None

OPEN ITEMS: None

3.11 OU 11 - WEST SPRAY FIELD

DESCRIPTION:

The West Spray Field is located within Rocky Flats property boundary immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from the solar evaporation ponds 207-B North and Center (contaminated groundwater in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to determine the presence and levels of hazardous constituents in soil and groundwater.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Phase I RFI/RI Work Plan 08 Jun 90

OCTOBER WORK ACTIVITY STATUS: None to report

PLANNED WORK FOR NOVEMBER:

DOE will begin incorporating the regulatory agencies comments into the OU 11 Draft Phase I RFI/RI Work Plan.

PROBLEMS:

Western Aggregate has submitted a request to DOE to mine the mineral resources for which they own the rights and which are under a portion of the western edge of the Rocky Flats Plant. The land in question is located within Operable Unit 11 - West Spray Field. DOE has had preliminary discussions with EPA on this matter, and EPA agrees with DOE that a decision for any mining operations should be delayed until the OU assessment is complete. DOE legal staff is reviewing the request from Western Aggregate. A meeting between the parties was held in September. The DOE Realty Officer is negotiating a mineral rights exchange which is tentatively scheduled to be complete by June 1992.

OPEN ITEMS: None

3.12 SITEWIDE ACTIVITIES

DESCRIPTION:

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP environmental restoration activities in general. The activities include, but are not limited to, the Health and Safety Plan (HSP), a Sampling and Analysis Plan (SAP), a Plan for Prevention of Contaminant Dispersion (PPCD), the Community Relations Plan (CRP), the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

SCOPE OF WORK CHANGES: None

TECHNICAL APPROACH CHANGES: None

MILESTONE ACCOMPLISHMENTS:

Submit Draft Background Study Report (Water)	15 Dec 89
Submit Draft Background Study Report (Soils)	15 Dec 89
Submit Draft Community Survey Plan	23 Jan 90
Submit Final Community Survey Plan	22 Mar 90
Submit Draft Health and Safety Plan	15 Aug 90
Submit Draft Quality Assurance Project Plan	29 Aug 90
Submit Draft Standard Operating Procedures	29 Aug 90
Submit Draft Plan for Prevention of Contaminant Dispersion	19 Sep 90
Submit Draft Treatability Study Plan	21 Sep 90
Submit Draft Community Relations Plan	01 Nov 90
Submit Final Health and Safety Plan	12 Nov 90
Submit Revised Background Study Report	21 Dec 90
Submit Final Community Relations Plan	22 Jan 91
Submit Final Quality Assurance Project Plan	01 Mar 91
Submit Final Standard Operating Procedures	01 Mar 91
Submit Draft Radionuclides Discharge Limits Plan	05 Apr 91
Submit Community Relations Plan Responsiveness Summary	21 Jun 91
Submit Final Treatability Study Plan	03 Jun 91
Submit Final Plan for Prevention of Contaminant Dispersion	22 Jul 91
Submit Final Plan Discharge Limits Radionuclides	16 Sep 91

OCTOBER WORK ACTIVITY STATUS:

Plan for Prevention of Contaminant Dispersion

Public comments have been received on the PPCD, and EG&G is preparing the Responsiveness Summary

(RS). The comments indicate that the PPCD will not require significant revision; only minor editorial and clarification modifications are needed. The RS and Final PPCD will be submitted to CDH and EPA on schedule, November 25, 1991.

Polychlorinated Biphenyls (PCBs)

The PCB Preliminary Site Description Plan was completed the first of October and delivered to the regulatory agencies.

Discharge Limits for Radionuclides

DOE has received an oral response on the Final Work Plan from EPA and CDH that the agencies may have a few minor comments at a later date. The first public meeting for the "Discharge Limits for Radionuclides Levels" Work Plan was held October 17, 1991. The public comment period for this plan is scheduled to end November 21, 1991. The responsiveness summary to the public comments (an IAG milestone) will be submitted to EPA and CDH on January 30, 1992.

Environmental Evaluations (EE)

The Environmental Evaluation for OU 2 and OU 5 continued with vegetation sampling for cover and production, small mammal trapping, periphyton sampling in Reference Area ponds, sampling of benthic macroinvertebrates, insect sweep-netting, and collection of small mammals, vegetation, and insects for tissue analyses. Field sampling for OUs 1, 2, and 5 is now complete, except for a winter survey to be performed in January or February 1992.

A review of the Risk Assessment Technical Working Group Meeting on the use of models in risk assessment was held on October 25, 1991. This review was in preparation for a formal presentation to the Colorado Department of Health scheduled for November 4, 1991.

The minutes from six of the Risk Assessment Technical Working Group Meetings on Environmental Evaluations will be distributed to the participating members as requested at the September 5, 1991 meeting.

Sitewide Treatability Study Program

DOE received comments from The Nevada Test Site (NTS) on the Draft Work Plan for the Treatability Study (TSWP) on plutonium contaminated soil. The comments are being incorporated into the TSWP. A revised draft was delivered to DOE by October 11, 1991. Some sections of this work plan have also been submitted to EG&G at the (NTS) for review and comment.

The NTS is planning to perform bench-scale testing under the Integrated Demonstration (ID) Program sponsored by the Office of Technology Development. The IAG requires the Treatability Program at the RFP to do the same type of bench-scale testing for the treatment of plutonium-contaminated soil. In addition, the Field Sampling Plan and the Sampling Health and Safety Plan for this task are undergoing revisions. Finalization of these documents is scheduled to be completed before the transmittal of the TSWP on plutonium-contaminated soil to EPA and CDH.

EG&G Representation at HQ Risk-Based Standards Committee Meeting

At the request of DOE, two EG&G representatives attended a meeting of the Risk-Based Standards Committee at Headquarters in Washington, DC during the week of October 7, 1991. Comprised of leading environmental scientists from throughout the DOE complex, the Committee is chartered to develop methodologies for and/or establish risk-based standards (i.e., clean-up levels) for remediation of DOE facilities. Risk-based standards are to be developed for human health and environmental impacts. Committee activities are just getting started with formation of special task-groups to focus on specific risk and standard setting issues.

Field Activities Drum Usage

Monthly drum inspection was completed on all drums in the buffer zone that contain drill cuttings from field activities. At the present time there are four hundred (55 gallon) drums in the buffer zone from the present drilling activities. All drums conform to the SOP for labeling and required paperwork.

Current field drilling activities are utilizing 55-gallon drums at the rate of approximately 60 drums per week. Four-hundred eighty new 55-gallon drums have been ordered for current drilling activities and are due to be delivered in four 120-drum shipments every two weeks starting November 15, 1991 and ending December 24, 1991.

Community Relations Buffer Zone Ecology Tour

On Wednesday, October 30, 1991, EG&G representatives conducted a buffer zone tour for the Technical Review Group (TRG) which is composed of representatives from local municipalities and local environmental groups. The tour included a 45-minute slide presentation and a two-hour tour covering the ecology of the plantsite. The tour is part of the IAG Community Relations Plan (CRP) developed in the Spring of 1991.

Administrative Record File Delivery

The Sitewide Program and OU 4 Administrative Record Index was delivered as scheduled to EPA and CDH for review and comment on October 28, 1991. The complete Administrative Record File Index, consisting of all the operable units and the placement of the Minolta reader/printers in the repositories will be delivered to EPA by the middle of November 1991.

PLANNED WORK FOR NOVEMBER:

Development of EPA required Standard Operating Procedure for Threatened and Endangered Species Act

Continue work on Draft Work Plan for the Treatability Study (TSWP)

Continue preparation of the "Response to Comment Document" for Discharge Limits for Radionuclides work plan

A public comment meeting entitled "Work Plan for Control of Radionuclide Levels in Water Discharges

from the Rocky Flats Plant" will be held November 6, 1991 in the Arvada City Council Chambers.

Delivery of the complete Administrative Record File Index, consisting of all the operable units and the placement of the Minolta reader/printers in the repositories to the EPA.

PROBLEMS: None

OPEN ITEMS: None

4.0 ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the Environmental Monitoring and Assessment Division, Environmental Management Department, and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe fieldwork and to obtain split or duplicate samples.

SURFACE WATER AND SEDIMENTS:

Each of the Surface Water Stations (approximately 120 stations) are sampled monthly.

Each of the Sediment Stations (approximately 40 stations) are sampled quarterly.

Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOAs
CLP TAL Metals
plus Cesium
Lithium
Molybdenum
Strontium
Tin
Major Anions
Radionuclides
Field Parameters
pH
Temperature
Specific Conductivity
Dissolved Oxygen (DO)
Turbidity

SOILS:

Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) are sampled annually.

Each soil sample is analyzed for plutonium and americium.

GROUNDWATER:

259 of the 371 total Groundwater Stations are sampled quarterly; this includes alluvial wells, bedrock wells, and pre-1986 wells. Approximately one third of the wells are monitored monthly for water levels.

Each groundwater sample is analyzed for CLP TCL VOAs, CLP TAL Metals, as well as the following parameters:

Radiochemical Parameters		Inorganic Parameters	Field Parameters
Gross Alpha	Tritium	Nitrate/Nitrite	Dissolved Oxygen (DO)
Gross Beta	Lithium	Total Phosphorous	Specific Conductivity
Plutonium	Uranium	Ortho-Phosphate	Temperature
Americium	Cesium	Ammonia	Turbidity
Strontium	Tin		pH
Molybdenum			

5.0 CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the Rocky Flats Plant Environmental Restoration Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

OU	PROJECT	SUBCONTRACTOR	SUB-SUBCONTRACTOR	WORK DESCRIPTION	START DATE
1	Assessment	Ebasco	Dames & Moore Stoller Corp.	OU1 RFI/RI fieldwork (drilling, well development/ completion, sampling) and RI report	Apr-91
1	Remediation	Advance Tanks		Fabricate/Install effluent storage tanks for OU1 IRA	Oct-91
1	Remediation	Bruner		OU1 IRA ion exchange system	Feb-91
1	Remediation	E.T. LaFore		Installation of Phase II-A treatment system equipment for OU1 IRA	Jun-91
1	Remediation	Eng Sciences		Design Phase II-B French drain for OU1 881 Hillside IRA	Sep-90
1	Remediation	Jennison		Construct Phase II-B French drain at OU1 IRA	Aug-91
1	Remediation	P.S.I.		UV bench scale testing for volatile organics	Aug-91
2	Assessment	Woodward-Clyde		OU2 RFI/RI Work Plan (alluvial & bedrock) and RI fieldwork (drilling, well completion/development)	Sep-90
2	Assessment	Weston		OU2 RFI/RI Alluvial Work Plan	Nov-90
2	Remediation	Riedel Env. Svcs.		Fabricate/install/operate GAC/FTU system for South Walnut Creek Phase of OU2 IRA.	Apr-91
2	Remediation	Stearns Rogers		Performance Specification for chemical precipitation/ membrane/filtration system for South Walnut Creek Phase of OU2 IRA	Jun-91
2	Remediation	Weston		IRAP, EA, Risk Assessment, and Historical Assessment for Women Creek	Jun-91
2	Remediation	Woodward-Clyde		Conduct bench-scale tests on surface water	May-91
3	Assessment	IT Corporation	CH2M Hill	OU3 RI Work Plan	Mar-91
3	Assessment	IT Corporation	CH2M Hill	Revegetate offsite lands	Jun-91
4	Assessment	IT Corporation	Applied Environ.	OU4 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum	Sep-91
4	Remediation	IT Corporation		Prepare OU4 IM/IRA Action Plan	Jul-90
5	Assessment	Woodward-Clyde		OU5 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum	Feb-90
6	Assessment	Woodward-Clyde		OU6 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum	Feb-90

OU	PROJECT	SUBCONTRACTOR	SUB-SUBCONTRACTOR	WORK DESCRIPTION	START DATE
7	Assessment	IT Corporation	Stoller Corp.	OU7 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum	Apr-90
9	Assessment	IT Corporation		OU9 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum	Mar-90
10	Assessment	Ebasco		OU10 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum	TBD
11	Assessment	IT Corporation		OU11 RFI/RI Work Plan including Environmental Evaluation Plan and Quality Assurance Addendum	TBD
SW	Hist. Rel. Rep.	IT Corporation	Doty & Assoc.	Prepare Historical Release Report	Feb-91
SW	PCB Assess.	Ebasco	Stoller Corp.	Prepare PCB Assessment Report	Jan-92
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct-90
SW	Geolog. Char.	ASI		Geologic Characterization, Data Base, and graphics	Feb-90
SW	Monitoring	Ebasco		Analytical Services for groundwater, surface water, and sediment	Dec-90
SW	Monitoring	IT Corporation		Analytical Services for groundwater, surface water, and sediment	Jul-90
SW	Fld. Oversight	Ebasco	Stoller Corp.	ER field operations oversight	Oct-90
SW	Treatability	Ebasco		Sitewide treatability studies - Pu contaminated soils	Apr-90
SW	Treatability	Woodward-Clyde		Technical evaluation of sitewide treatability studies	Jul-90
SW	PPCD	Ebasco		Plan for Prevention of Contaminant Dispersion	Jun-90
SW	QA	Ebasco	SAIC	Develop and implement quality assurance program and field operations oversite	Dec-90
PM	Support	Ebasco	Stoller Corp.	Program Management Support	Feb-90